

Notice of Allowability

Application No.

10/700,446

Examiner

Yonel Beaulieu

Applicant(s)

HIGASHIMATA ET AL.

Art Unit

3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to papers filed.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ The drawings filed on 05 November 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 11/05/03
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

YONEL BEAULIEU
PRIMARY EXAMINER

Allowable Subject Matter

Claims 1 – 20 are allowed.

The prior art of record fail to teach a slip control system of an automatic transmission with a torque converter, comprising, among other limitations, a control unit that feedback-controls an engagement capacity and comprises:

(a) a target slip-rotation speed calculation section that estimates a target slip-rotation speed based on engine-and-vehicle operating conditions;

(b) a pre-compensating section that pre-compensates for the target slip-rotation speed to produce a target slip-rotation speed correction value;

(c) a slip-rotation speed deviation calculation section that calculates a slip-rotation speed deviation between the target slip-rotation speed correction value and the actual slip-rotation speed;

(d) a feedback compensating section that feedback-controls the engagement capacity based on the slip-rotation speed deviation to bring the actual slip-rotation speed closer to the target slip-rotation speed; and

(e) a dead-time processing section that compensates for the target slip-rotation speed correction value, considering a dead time of dynamic characteristics peculiar to the slip control system in the target slip-rotation speed correction value, to supply a dead-time compensated output to the feedback compensating section.

The system further comprising a pre-compensating section comprises (b) a pre-compensating section comprising (i) a first compensating filter that pre-compensates for

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the target slip-rotation speed to produce a first target slip-rotation speed correction value corresponding to a reference-model output from an expression $\omega_{SLPTC1} = G_R(s) \times \omega_{SLPT}$ where ω_{SLPTC1} is the first target slip-rotation speed correction value, $G_R(s)$ is a reference model that is set as a transfer function suited to a desired response determined based on designer's wishes, and ω_{SLPT} is the target slip-rotation speed, and (ii) a second compensating filter that pre-compensates for the target slip-rotation speed to produce a second target slip-rotation speed correction value from an expression $\omega_{SLPTC2} = G_M(s) \times \omega_{SLPT}$ where $G_M(s)$ corresponds to a feed-forward compensator, which is defined by an expression $G_M(s) = G_R(s)/P(s)$, where $G_R(s)$ is the reference model and $P(s)$ is a transfer function that is obtained by modeling a lockup-clutch slip-rotation section serving as a controlled system.

Conclusion

Ichinoseki et al. (JP 09265745 A) teaches a torque transmission clutch formed by a friction force, wherein, among other things, an excessive torque exceeding the friction force makes the clutch slip and this controls the transmission of the torque within a prescribed range, but *not in the manner of the present claimed invention*.

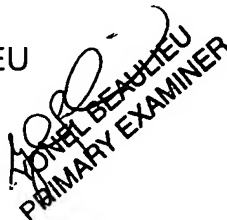
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yonel Beaulieu whose telephone number is (703) 305-4072. The examiner can normally be reached on M-R, from 0900-1600.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas BLACK can be reached on (703) 305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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